Technologies to Reduce the Access Barrier in Human Computer Interaction Erasmus Intensive Programme 2012-1-FI1-ERA10-09684

Teddy Doctor

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Ideas, design and implementation/1

- Discarded ideas
 - Communication by pictograms
 - Physical activities as a game to develop muscles





EDUCATION













INDUSTRY/COMMERCE



Ideas, design and implementation/2

Chosen Idea:

Support Communication of autistic children by cartoons

- Motivation
 - some children with autism feel uncomfortable talking to real persons
 → difficulties for parents or doctors to communicate with the child
 - Talking to an comic avatar could improve communication
- Our goals:
 - replace the real person with an comic avatar
 - Send voice-modulated speech to child (microphone or text-to-speech)





Ideas, design and implementation/3

Used Technologies

- Programming Environment: C# in Visual Studio
- Kinect to capture motion and voice
- .Net-Library for text-to-speech
- XNA to visualize character
- WPF to build user-interface
- 3D-Studio Max

Design

MainWindow	
✓ activate Microphone	
	Send



Subtasks

- Apply kinect-motiondata to avatar
- Change avatar-model
- Grab and play kinect microphone data
- Implement text-to-speech and voice modulation
- Implement WPF-window for controlling
- Create presentation

Difficulties

Problems solved

- XNA and WPF are hard to combine
- Grabbing the micro-data
- Change avatar model
- Problems unsolved
 - Voice modulation
 - Importing fbx-models as avatar



What was learned

- Technologically
 - .NET, C#, Visual Studio
 - XNA,WPF
 - Kinect SDK
 - 3D Studio Max
- Social skills
 - speaking English and discuss
 - work in groups



What was left undone

- Mixing XNA and WPF in single UI
- Voice modulation
- Importing different avatars



Ideas for further development

- Possibility to change the Background
- Add communication-channel from child to adult
- Record facial expression and add it to the avatar

Demonstration

Thanks for your

attention

Questions?